

Appl. No. 10/813,250
Reply to Office Action of 11/21/2007

Page 8

REMARKS/ARGUMENTS

In reply to the Office Action mailed November 21, 2007, Applicants respectfully request reconsideration and allowance of the subject application. Claims 3-8, 11 and 28-31 have been allowed while claims, 23, 24, 27 and 32-44 are rejected for obviousness. Claim 27 has been amended. Accordingly, claims 3-8, 11, 23, 24 and 27-44 remain pending in the subject application.

Applicants note with gratitude the allowance of claims 3-8, 11 and 28-31.

Claim 27 has been rejected for obviousness under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication US 2002/0009404 (the "Tsybulevskiy publication") in view of U.S. Patent 6,482,316 (the "Bal patent"), U.S. Patent 4,354,929 (the "Wessels patent") and U.S. Patent 6,395,950 (the "Rice patent"). Claim 27 recites "fractionating the desorbent containing sulfur-oxidated compounds from step (c) in a split shell fractionation zone to recover a desorbent having a reduced concentration of sulfur-oxidated compounds." None of the Tsybulevskiy, Bal, Wessels or Rice references discloses fractionating in a split shell fractionation column. A split shell fractionation column has a dividing wall that extends from a bottom of the fractionation column and ends part way up the height of the fractionation column. Application at page 8, lines 2-4. The two compartments defined by the dividing wall are open and communicate with the upper end of the fractionation column. *Id.* at lines 4-5. Applicants have amended claim 27 to recite this distinction of, "said split shell fractionation zone comprising a fractionator with a dividing wall extending upwardly from a bottom of the fractionator." Support for this amendment is found in the application at page 8, lines 2-3. Applicants respectfully submit that none of the cited references discloses use of a split shell fractionation column and respectfully request reconsideration and allowance of claim 27.

Independent claim 32 is rejected for obviousness under 35 U.S.C. §103(a) as being unpatentable over the Tsybulevskiy publication in view of the Bal patent, the Wessels patent and U.S. Patent 6,019,887 (the "Ramirez patent"). Applicants respectfully request

Appl. No. 10/813,250
Reply to Office Action of 11/21/2007

Page 9

reconsideration and withdrawal of the rejection of claim 32 for obviousness. Claim 32 recites contacting the adsorbent having adsorbed sulfur-oxidated compounds with a purge stream to displace interstitial hydrocarbons and then contacting the adsorbent having adsorbed sulfur-oxidated compounds with a desorbent and the "purge stream boiling in a range lower than the boiling range of the desorbent." The Ramirez patent teaches use of an adsorbent to adsorb nitriles from a hydrocarbon stream fraught with reactive dienes which is not related to the adsorption of sulfur oxidated compounds involved in the subject application. In discussing regeneration of the nitrile-selective adsorbent by purge and desorption, the Ramirez patent does not teach that a purge stream should boil in a lower temperature range than the desorbent. The preference in the Ramirez patent is that the purge stream be heavier than the desorbent stream. Ramirez states more preference that the purge material be "C6-C16 aromatic hydrocarbon streams," col. 7, lines 19-20, while stating most preference that the desorbent material be lighter compounds: "methanol, methyl tert butyl ether (MTBE), tert amyl methyl ether, acetone and mixtures thereof," id. at lines 1-3. The rejection recognizes that Ramirez is suggesting, "the purge is heavier than the desorbent." Office Action at page 5, line 1. On the contrary, claim 32 recites the "purge stream boiling in a range lower than the boiling range of the desorbent." Because heavier materials boil in a higher temperature range than lighter materials, the rejection recognizes that the Ramirez patent suggests a purge stream boiling in a temperature range higher than the boiling temperature range of the desorbent, which is the converse of what is recited in claim 32. Applicants respectfully submit that one of ordinary skill in the art would not find the Ramirez patent relevant to the invention of claim 32, and even if he did find Ramirez relevant, it would teach away from the claimed invention by suggesting that the purge stream boil in a temperature range higher than the boiling range of the desorbent. Applicants respectfully submit that claim 27 is not obvious over the four references cited. For at least the same reasons, Applicants respectfully submit that claims 23, 24 and 33-44 which depend from claim 32 are also not obvious over the four cited references.

It should also be noted that the Tsybulevskiy publication teaches thermal regeneration of the adsorbent with a hot gas flow instead of liquid desorption which

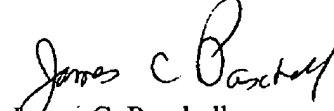
Appl. No. 10/813,250
Reply to Office Action of 11/21/2007

Page 10

requires fractionation of desorbent from sulfurized hydrocarbon compounds. Tsybulevskiy at ¶0048. Additionally, the Bal patent expresses a preference for using a hydrotreater to convert the sulfur species in the desorbent to hydrogen sulfide and sulfur-free hydrocarbon because “[i]n such a scheme, no distillation column would be necessary,” col. 3, lines 34-35, to separate the desorbent from desorbed sulfur species. Applicants respectfully submit that these preferences against use of distillation columns in the Tsybulevskiy and Bal references further militate against a motivation to add distillation-based teachings from two of the Wessels, Rice and Ramirez patents to the two Tsybulevskiy and Bal references in each rejection.

For the foregoing reasons, Applicants respectfully request reconsideration and allowance of the rejected claims 23, 24, 27 and 33-44 pending in the subject application. Should the Examiner wish to discuss the matter further, he is invited to contact the undersigned.

Respectfully submitted,



James C. Paschall
Attorney for Applicants
Reg. No. 36,887
(847) 391-2355 (phone)
(847) 391-2387 (fax)

JCP/gm